

Sandia National Laboratories

A History of Exceptional Service in the National Interest

Kirtland and Sandia Base in 1945



Sandia's precursor was Z Division, created in 1945 as the ordnance design, testing, and assembly arm of Los Alamos. The Division moved to Sandia Base outside of Albuquerque to be near an airfield and work closely with the military. In 1948, Z Division's growth prompted its designation as Sandia Laboratory, a separate branch of Los Alamos. On November 1, 1949, Sandia Corporation, a wholly owned subsidiary of Western Electric, began managing Sandia. In 1956, a second Sandia laboratory site was established in Livermore, California. Sandia was made a national laboratory in 1979. In 1993, Martin Marietta (now Lockheed Martin) took over Sandia's management contract.

The following timeline highlights some of Sandia's achievements.

1949 Given on-going responsibilities for stockpile surveillance. Provided surveillance personnel at the nation's nuclear weapon storage sites until 1960, when the introduction of sealed-pit weapons reduced the need for constant weapon maintenance.

1950s Developed technologies for the wooden bomb—a weapon that could sit ready in the stockpile for years with little maintenance.

1956 Opened a new laboratory in Livermore, California.

1958 Shock-resistant components and parachute systems made possible the safe laydown delivery of nuclear bombs.

1960 Tonopah Test Range replaced the Salton Sea Test Base as the permanent range for field testing components and weapon designs.

The science of terradynamics emerged from earth-penetrator design efforts.

Introduced the Permissive Action Link to prevent unauthorized use of nuclear weapons.

Laminar Flow Clean Room developed; the first in a long line of weapons spin-offs.

1962 Strypi rocket developed for the high-altitude Dominic nuclear test series.

B61 design program to create a flexible lightweight tactical thermonuclear weapon began. Its most recent modification, the B61-11, was introduced in 1997.

1962 Began work on an independently targeted warhead fully integrated with its reentry vehicle. The Navy subsequently contracted with Sandia for the Mark 3 reentry body for the Poseidon missile.

1963 The VELA satellites, with Sandia-designed optical sensors as well as data processing, logic, and power subsystems, were launched to detect nuclear detonations.

Strypi rocket



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1966 Helped locate the bomb lost in an aircraft collision over Palomares, Spain. Safety concerns prompted Sandia to establish an independent safety group to assess weapon designs.

1970 Designed the Safe Secure Trailer for transporting nuclear weapons; later designed and tested accident resistant containers for nuclear materials.

1972 Began anti-terrorism work-offering training and developing more formidable barriers to protect critical sites. Led to more recent anti-terror technologies, including an improved airport security portal, a school physical safety design, and detecting equipment, like MicroHound, for sniffing out faint concentrations of explosives.

1973 Responding to the energy crisis, began research on solar and wind technology, photovoltaics, enhanced fossil fuels recovery, and fusion development.

1974 Named the technical advisor on the Waste Isolation Pilot Plant (WIPP); WIPP received first waste in 1999.

1981 The Combustion Research Facility opened at Sandia California. It is open to researchers from around the world.

1983 Contributed to the assessment of countermeasures and vulnerability of the Strategic Defense Initiative.

Published research on strained-layer superlattices, a new class of materials that allow scientists to tailor semiconductors to specific functions.

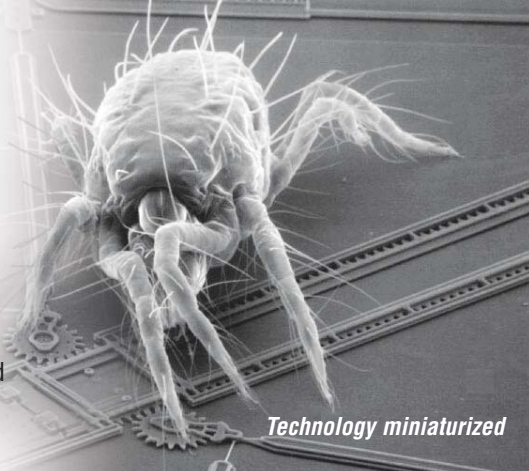
1984 Factored the 69-digit Mersenne number as part of the effort to test and challenge weapon security codes.

1991 Sandia-advanced synthetic aperture radar (SAR) was used in Desert Storm. Capable of seeing through cloud cover, SAR was first studied at Sandia in 1986.

1993 Received mission assignment for neutron generator production.

1994 Cooperative Monitoring Center began hosting arms control specialists from around the world, informing them about available treaty-monitoring technologies.

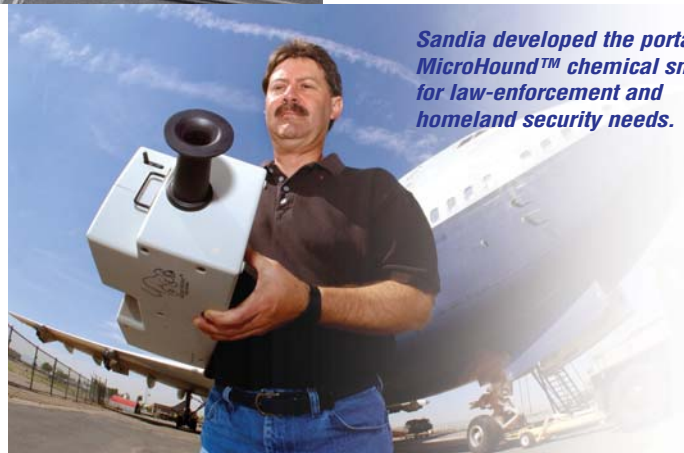
1995 Agreement with Intel to pursue development of a computer ten times faster than any in existence, resulting in ASCI Red, which held computing speed records from 1996 to 2000. In 2004, Sandia completed construction on the first phase of Red Storm. Built in agreement with Cray, it will be faster, smaller, and less expensive than any competing supercomputer.



Technology miniaturized

1997 NASA's Pathfinder space probe arrived on Mars, its landing cushioned by airbags designed by a Sandia/Jet Propulsion Laboratory team.

1998 Z machine briefly achieved an output of 290 trillion watts.



Sandia developed the portable MicroHound™ chemical sniffer for law-enforcement and homeland security needs.

2000 Sandia expanded its work in microelectromechanical (MEMS) technology research, pushing ever-smaller chip features to the atomic scale.

2001 Sandia-developed decontamination foam used to neutralize anthrax in buildings on Capitol Hill.

2002 The Rapid Syndrome Validation Project (RSVP), a joint Sandia and NM Dept. of Health system to quickly detect disease outbreaks, was deployed in southern New Mexico.

2003 Researchers in the Thermal Protection Materials Program created ultra-high-temperature ceramics (UHTCs) in Sandia's Advanced Materials Laboratory. The new lightweight material can withstand temperatures up to 2000°C and is of potential use on hypersonic vehicles, such as the space shuttle

2004 Introduced the Sandia Gauntlets-shoulder-length Kevlar gauntlets with carbon-composite forearm and upper arm protective inserts-as a direct response to U.S. military needs in Iraq. Also in 2004, the Distributed Information Systems Laboratory (DISL) was dedicated at Sandia/California; the facility will provide a test-bed for research, development, and prototyping of new advanced technologies before they're deployed throughout the nuclear weapons complex.

For more information, visit the Sandia National Laboratories web site at www.sandia.gov or contact:

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